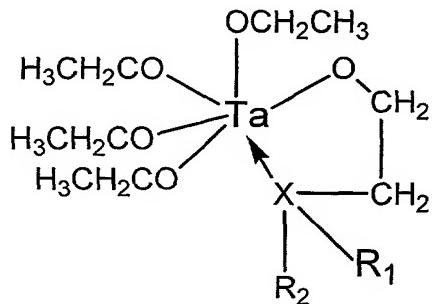


**SEMICONDUCTOR CAPACITORS HAVING TANTALUM OXIDE LAYERS
AND METHODS FOR MANUFACTURING THE SAME**

Abstract of the Disclosure

Semiconductor capacitors comprise first electrodes, second electrodes, and tantalum oxide layers positioned between the first electrodes and the second electrodes. The tantalum oxide layers are formed by depositing at least one precursor and ozone gas, the at least one precursor represented by the formula:

- 5 least one precursor and ozone gas, the at least one precursor represented by the formula:



- 10 wherein X is selected from the group consisting of nitrogen, sulfur, oxygen, and a carbonyl group; and
R1 and R2 are independently alkyl.